ABSTRACT OF THE DISCLOSURE

In order to determine the angular movement of an induction motor, it is generally necessary to connect some kind of sensor in the form of a tachogenerator, resolver or encoder. Some variable-speed drives determine the angular movement with the help of the distortion in the waveshape generated by the drive when approaching a pole inside the induction motor. This new method of sensing is different in two ways: One, it uses the hardware of induction motor itself as a low-power alternator producing alternating-current output of frequency and voltage proportional to the rpm of the induction motor. Two, this method only works when the mains supply to the motor is removed either in a planned manner or accidentally. The method of self tachogeneration by an induction motor has been successfully utilized in the implementation of an uninterrupted power supply to keep supplying oil to a hydrostatic bearing in the case of sudden power failure. The use of this method ensured that the UPS only started inverting when receiving a signal from the induction motor rotating the large grinding wheels mounted on the bearing. In the case of the grinding wheels at a standstill the inverter of the UPS would not start in the case of a sudden power failure. This property of an induction motor acting as a low-power alternator is due to some residual magnetism left in the ferromegnetic circuit of the squirrel-cage rotor. To implement this method, a changeover switch is required so that the low-power self tachogeneration by the induction motor does not get sunk in the low-impedence of the power mains. By using this new method, the direction of rotation and the amount of angular movement can be determined of any induction motor coming to a standstill after a mains holdup or rotating due to some external mechanical force on the rotor. An induction motor when not running can double up as a tachogenerator to sense some other movement in many machine-tool and industrial applications.